

## PROJECT ADMINISTRATION DATA SHEET

☒ ORIGINAL ☐ REVISION NO. \_\_\_\_\_

Project No. D-48-605 GTRI/~~OTXX~~ DATE 3/17/83  
Project Director: ~~Richard Martin~~ A.J. BRADSHAW School/~~EES~~ Architecture  
Sponsor: Division of Vocational Rehabilitation; Ga. Dept. of Human Resources

Type Agreement: A&I #V023111  
Award Period: From 2/23/83 To 4/22/83 (Performance) \_\_\_\_\_ (Reports) \_\_\_\_\_  
Sponsor Amount: Total Estimated: \$ 300 12/30/83 Funded: \$ 300  
Cost Sharing Amount: \$ \_\_\_\_\_ Cost Sharing No: \_\_\_\_\_  
Title: Feasibility Study for Charlene McClendon

## ADMINISTRATIVE DATA

OCA Contact Frank H. Huff

## 1) Sponsor Technical Contact:

Robert J. Patrick

## 2) Sponsor Admin/Contractual Matters:

Robert J. PatrickDivision of Vocational RehabilitationDivision of Vocational RehabilitationRoom 635-SRoom 635-S47 Trinity Avenue-SW47 Trinity Avenue-SWAtlanta, GA 30334Atlanta, GA 30334656-2480656-2480Defense Priority Rating: NAMilitary Security Classification: NA  
(or) Company/Industrial Proprietary: \_\_\_\_\_

## RESTRICTIONS

See Attached \_\_\_\_\_ Supplemental Information Sheet for Additional Requirements.

Travel: Foreign travel must have prior approval — Contact OCA in each case. Domestic travel requires sponsor approval where total will exceed greater of \$500 or 125% of approved proposal budget category.

Equipment: Title vests with Sponsor

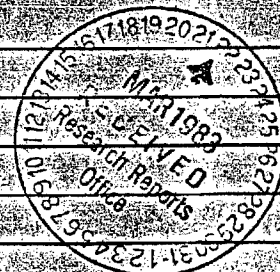
## COMMENTS:

## COPIES TO:

Research Administrative Network  
Research Property Management  
Accounting  
Procurement/EES Supply Services

Research Security Services  
Reports Coordinator (OCA)  
GTRI  
Library

Research Communications (2)  
Project File  
Other M Martin  
Other \_\_\_\_\_



SPONSORED PROJECT TERMINATION/CLOSEOUT SHEETDate April 9, 1985Project No. D-48-605 Sub. under B-10-682School/Dept. XXX Arch. XXX

Includes Subproject No.(s) \_\_\_\_\_

Project Director(s) Richard MartinGTRC XXXSponsor Ga. Dept. of Human Resources; Div. of Rehabilitation ServicesTitle Feasibility Study for Charlene McClendonEffective Completion Date: Open (Performance) \_\_\_\_\_ (Reports) \_\_\_\_\_

## Grant/Contract Closeout Actions Remaining:

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None

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Final Invoice or Final Fiscal Report Final Invoice already submitted.

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Closing Documents

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Final Report of Inventions

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Govt. Property Inventory &amp; Related Certificate

☐

Classified Material Certificate

☐

Other \_\_\_\_\_

Continous Project No. \_\_\_\_\_

Continued by Project No. \_\_\_\_\_

## COPIES TO:

Project Director  
Research Administrative Network  
Research Property Management  
Accounting  
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A UNIT OF THE UNIVERSITY SYSTEM OF GEORGIA  
ATLANTA, GEORGIA 30332

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(404) 894-3476

FINAL REPORT

PROJECT NO. D48-605

GRANT/CONTRACT NO. A&I 023111

"Lanier EZ-1 Word Processor Conversion for Usage by the Visually Impaired."

The Center for Rehabilitation Technology (CRT) received a request for technical assistance from DRS Counselor Wayne Sanders which required modifications to word processing equipment to enable usage of that equipment by the blind. Mr. Sanders stated that there existed a potential job market for the blind in medical transcription if blind clients could be trained to operate word processors. Mr. Sanders also concluded that many of the potential employers are presently using Lanier equipment and that it was preferable that the modification incorporate a Lanier WP.

CRT conducted a product search to determine if there was existing equipment available to answer this need. CRT found that there have been successful adaptations of WPs for blind usage by incorporating the use of a voice synthesizer enabling verbal transmission of visual information from the screen to the blind operator. The operator would have command of the verbal feedback by cursor control on the keyboard. CRT could not locate any Lanier WPs that have this capability. The product search discovered these two existing products:

1. Maryland Computer Services, Inc. offers a computer system capable of word processing called 'Information Thru Speech' (ITS). This system combines a Hewlett-Packard computer with a voice synthesizer, printer and software that enables control by a blind operator. With dual disk drives this system sells for \$9,000.
2. IBM offered a voice synthesizer that could be used in conjunction with their Mag Card II unit. IBM discontinued sales of the Mag Card II in early 1983.

Due to the great expense of the Maryland Computer Services' ITS product and discontinuance of the IBM Mag Card II, CRT concluded that a project to modify a Lanier WP was justified.

CRT confirmed with Lanier's engineering office that the adaptations were feasible. Lanier staff recommended that their Model EZ-1 would be best suited for modification. Since DRS policy prohibits computer purchases, Robert Ferst, President of the CRT Board of Directors, convinced Lanier Chairman Gene Milner to donate an EZ-1 for this project. Lanier generously donated a complete EZ-1 WP system, valued at \$6800, to the Georgia Tech Foundation for use in developing this project.

It was determined that specialized software was needed in order to utilize a voice synthesizer with the Lanier WP. Lane L. Fowler was contracted as a consultant by CRT to work with Lanier R & D engineering in the development of this software. A. J. Bradshaw of the CRT at Georgia Tech served as Project Director.

The parameters for this project were as follows:

1. The modification of the WP unit would not in any way interfere with its normal operation. This is so that if an employer supplies the WP, no permanent modification would hinder the use of the WP for anyone in the office at anytime. The speech package could be simply disconnected or switched off.
2. Spatial location on the screen would be verbalized by assigning line 1 to letter A, line 2 to letter B, etc., and horizontal spaces by numbers from 0 to 150. For example, if the cursor is on line 3 and 5 spaces right of the left hand margin, the synthesizer would identify this location as "C5."
3. The voice synthesizer would provide the following pronunciation options:
  - a. Read words
  - b. Spell words
  - c. Read capital letters special
  - d. Read all punctuation
4. All speech package commands would be controlled by keys on the EZ-1 keyboard.

Mr. Fowler worked with Lanier personnel to successfully develop the software as outlined. The "Echo GP" voice synthesizer manufactured by Street Electronics was used in the prototype. The prototype was demonstrated to CRT and DRS personnel and determined satisfactory. The software package was tested at Lanier R&D word processing labs and found to be technically sound.

Cost to implement the modification for a blind vocational use is comparatively low. The project produced two copies of this software that is the property of DRS under the original R&D contract with Georgia Tech. Software distribution and pricing for non-DRS purchasers is currently being studied. Georgia Tech owns the rights to the speech package software and Lanier owns the rights to their WP software with the production and marketing of the speech package at the discretion of these two organizations.

Given that an employer would supply the EZ-1 WP hardware (this software is also compatible with the Lanier EZ-II and LBP WP models), a DRS client could be hired for word processing with the additional speech package. Voice synthesizer prices vary depending on options and quality of speech. Total costs would depend on yet determined software prices and the voice synthesizer selected.

Visually impaired candidates for word processing should have a high aptitude, good memory, minimum of a 12th grade education, familiarity with office procedures, and type at least 50wpm before entering WP training. After WP training, these candidates may be difficult to place in competitive employment situation, but sheltered employment and contracted piece work employment could present new opportunities.

CRT has lended the donated Lanier Word Processor to the Georgia Department of Rehabilitation Services (DRS) for initial training and evaluation purposes. (DRS has assumed all liabilities for this equipment for the duration of the loan, as per signed agreement.) At this point, DRS has selected two blind candidates for training with actual training classes to start in late May 1984. CRT will monitor the progress of these blind clients during the training period under technical assistance provision in Contract D48,616.

This project has successfully met the contract criteria and the end product has been delivered to the sponsor.